REMARKS

Claims 1-66 are pending in the present application. The Examiner has merely objected to claims 2-11, 14-19, 36-45 and 47-53. Claims 1, 12, 13, 20-35, 46 and 54-66 stand rejected under 35 U.S.C. § 103(a) as being obvious. Claims 20-30 stand rejected under 35 U.S.C. § 102(b) as being anticipated.

I. PATENTABLE SUBJECT MATTER

Applicants gratefully acknowledge the indication by the Examiner that claims 2-11, 14-19, 36-45 and 47-53 recite patentable subject matter. However, in view of the remarks below, it is believed that claims 2-11, 14-19, 36-45 and 47-53 are in condition for allowance.

II. CLAIM 1

Claim 1 stands rejected under 35 U.S.C. § 103(a) as being obvious over United States Patent No. 6,020,783 ("Coppola") in view of United States Patent No. 6,804,359 B1 ("Yu"). Applicants respectfully traverse the rejection as set forth below.

A. Coppola Teaches Away From the Claimed Invention of Claim 1

Claim 1 recites "a first polyphase filter to output a plurality of phases of an input signal including a first phase and an inverted first phase; and a second polyphase filter having an input to receive the inverted first phase and an inverted input to receive the first phase".

M.P.E.P. § 2145(X)(D)(1) states "[a] prior art reference that 'teaches away' from the claimed invention is a significant factor to be considered in determining obviousness". M.P.E.P. at page 2100-161 (Rev. 5, August 2006).

In view of M.P.E.P. § 2145(X)(D)(1), Applicants respectfully submit that Coppola teaches away from the claimed invention as set forth in claim 1.

According to M.P.E.P. § 2145(X)(D)(1), it should be considered a "significant factor" that Coppola teaches away from the claimed invention as set forth in claim 1 in determining that the subject matter recited in claim 1 is nonobvious.

Applicants respectfully draw the attention of the Examiner to FIG. 1 of Coppola. The Examiner may note that notch filter path 14 is in parallel with notch filter path 20 which is also in parallel with notch filter path 24.

Why are the notch filter paths in parallel rather than in series?

The Background Section of Coppola clearly explains why Coppola teaches parallel notch filter paths instead of series notch filter paths (namely, cascaded notch filter paths).

> The network cascades the individual notch filters. Thus, in theory an incoming spectra passes through each of these notch filters with each filter attenuating its corresponding frequency spectrum. However, the desired signals in the spectra also degrade as they pass through the successive filters.

Coppola at col. 1 lines 25-30.

Applicants now respectfully draw the attention of the Examiner to the recited elements as set forth in claim 1.

Note how the first polyphase filter is arranged with respect to the second polyphase filter.

Note how the inputs of the second polyphase filter receive the outputs of the first polyphase filter.

Such an arrangement is similar to the cascaded notch filter paths in the Background Section of Coppola that Coppola disparages for degrading the desired signal by passing through each of the notch filter paths in series.

Coppola would teach away from the notch filter arrangement as set forth in claim 1 since, according to the teachings of Coppola, the signal would have to pass through both the first polyphase filter and the second polyphase filter thereby doubling the degradation of the desired signal.

Thus, Coppola teaches away from arrangement of the first polyphase filter and the second polyphase filter as set forth in claim 1.

It is respectfully submitted that, since the teaching away of Coppola is a "significant factor" in the determination of obviousness, the obviousness rejection cannot be maintained based, at least in part, on Coppola.

B. Coppola and Yu Do Not Teach Each and Every Element

In view of claim 1 reciting a first polyphase filter and a second polyphase filter, the Examiner freely admits that Coppola does not teach the first polyphase filter and the second polyphase filter as set forth in claim 1.

Instead, the Examiner alleges that Yu makes up for the teaching deficiencies of Coppola. Applicants respectfully submit that Yu does not make up for the teaching deficiencies of Coppola.

While FIG. 8 of Yu does identify two blocks as polyphase filter 42 and polyphase filter 44, it must be pointed out that block 18 is not a notch filter. Instead, block 18 is "a signal mapping circuit 18 which is useful for the double sampled system". Yu at col. 5, lines 7-8.

So, the polyphase filters 42, 44 in Yu are **not** part of a notch filter. Instead, polyphase filters 42, 44 in Yu are part of a signal mapping circuit 18 – which is **not** a notch filter.

Furthermore, in Yu, polyphase filters 42, 44 are not arranged as the first polyphase filter and the second polyphase filter in claim 1. The Examiner should carefully consider the arrangement of the first polyphase filter and the second polyphase filter. Note how the outputs the first polyphase filter are arranged with respect to the inputs of the second polyphase filter: "a first polyphase filter to output a plurality of phases of an input signal including a first phase and an inverted first phase; and a second polyphase filter having an input to receive the inverted first phase and an inverted input to receive the first phase". Note how the outputs of polyphase filter 42 is not arranged with respect to the inputs of polyphase filter 44 as set forth in claim 1 and vice versa.

Since Yu does not make up for the teaching deficiencies of Coppola, the obviousness rejection with respect to claim 1 cannot be maintained.

It is respectfully requested that the obviousness rejection be withdrawn with respect to claim 1.

C. Yu Teaches Away from Coppola

M.P.E.P. § 2145(X)(D)(2) states "[i]t is improper to combine references where the references teach away from their combination". M.P.E.P. at page 2100-161 (Rev. 5, August 2006).

Recall that object of the invention in Coppola is to "handle multiple undesired frequency spectra without degrading any desired spectra". Coppola at col. 2, lines 37-39. As noted previously, Coppola uses parallel notch filter paths 14, 20, 24 (e.g., FIG. 1 of Coppola) instead of series notch filter paths to minimize the degradation of any desired spectra.

Yu teaches away from such the approach that Coppola teaches. Yu teaches polyphase filters 42, 44 that output a signal with a small amount of undesirable signal content and a large amount of undesirable signal content. See, e.g., Yu at col. 6, lines 6-7. The Summary of the Invention section describes this as "exaggerating the undesirable signal content". See, e.g., Yu at col. 2, lines 54-55. Yu describes these two sets of signals as "signals with a small amount of noise" and "signals with a large amount of noise". See, e.g., Yu at col. 4, lines 17-20. Yu teaches that a component different from the polyphase filters 42, 44, namely, adaptive filter 28 reduces "the undesirable signal content using the exaggerated undesirable signal content". See, e.g., Yu at col. 2, lines 55-57.

Thus, instead of minimizing undesirable content, the polyphase filters 42, 44 provide for "exaggerating the undesirable signal content". Yu at col. 2, lines 54-55. Thus, instead of minimizing degradation of the desired spectra, Yu teaches "exaggerating the undesirable signal content".

It appears that the purposes of Coppola's notch filter paths 14, 20, 24 and Yu's polyphase filters 42, 44 are contradictory.

Since Coppola and Yu teach away from each other, Coppola and Yu cannot be properly combined. It is respectfully submitted that M.P.E.P. § 2145(X)(D)(2) is applicable and it states that "[i]t is improper to combine references where the references teach away from their combination". M.P.E.P. at page 2100-161 (Rev. 5, August 2006).

It is respectfully submitted that an obviousness rejection cannot be maintained base, at least in part, on Coppola and Yu.

D. Conclusion

It is respectfully submitted that any of the arguments in sections A, B or C merits traversing the obviousness rejection.

It is respectfully submitted that the sum total of all the above arguments in sections A, B and C is a significant argument for the patentability of the subject matter as set forth in claim 1.

It is respectfully requested that the obviousness rejection be withdrawn with respect to claim 1.

III. CLAIMS 12, 13, 31-35, 46 AND 54-66

Claims 12, 13, 31-35, 46 and 54-66 stand rejected under 35 U.S.C. § 103(a) as being obvious over Coppola in view of Yu. Applicants respectfully traverse the rejection as set forth below.

As in Section I.C. above, Applicants respectfully submit that the arguments made above with respect to Coppola and Yu teaching away from each other are also made herein.

For at least the above reasons, it is respectfully submitted that the obviousness rejection based, at least in part, on Coppola and Yu be withdrawn with respect to claims 12, 13, 31-35, 46 and 54-66.

As in Section I.A. above, Applicants respectfully submit that Coppola also teaches away from at least some of the claimed inventions as set forth in claims 12, 13, 31-35, 46 and 54-66 for the same or similar reasons, if applicable, as set forth above.

For at least the above reasons, it is respectfully submitted that the obviousness rejection based, at least in part, on Coppola be withdrawn with respect to some of the claimed inventions as set forth in claims 12, 13, 31-35, 46 and 54-66.

As in Section I.B. above, Applicants respectfully submit that Yu does not make up for the teaching deficiencies of Coppola with respect to some of the claimed inventions as set forth in claims 12, 13, 31-35, 46 and 54-66.

For at least the above reasons, it is respectfully submitted that the obviousness rejection based, at least in part, on Coppola and Yu be withdrawn with respect to some of the claimed inventions as set forth in claims 12, 13, 31-35, 46 and 54-66.

It is respectfully submitted that claims 12, 13, 31-35, 46 and 54-66 are also patentable for other reasons made clear in view of the specification, the prosecution history and/or the documents of record, individually or combined.

IV. ANTICIPATION REJECTIONS

Claims 20-30 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Coppola.

Claim 20 recites "generating means for generating an output signal comprising a plurality of phases of an input signal".

On the other hand, Coppola describes that the output of each notch filter path 14, 20, 24 is a signal that is always 180 degrees out of phase with the undesired spectrum.

Coppola states "[h]ence, the phase shift circuits 40 and 41 provide a simple and efficient means for maintaining the 180° out-of-phase relationship between an undesired spectrum and the mirrored spectrum from a notch filter path".

Also, how can, for example, notch filter path 14 in Coppola have **an output with a plurality of phases of the input signal**?

As described above, the output of notch filter path 14 in Coppola has ONE phase which is a 180 out-of-phase relationship.

An output with ONE phase as in Coppola is NOT an output with a plurality of phases as set forth in claim 20.

Claim 20 also recites "notching means for notching a particular frequency of the input **as a function of the phase**s" (bold added). On the other hand, Coppola does not describe notching a particular frequency as a function of the phases.

Since Coppola does not describe each and every element as set forth in claim 20, Coppola does not anticipate claim 20 and its rejected dependent claims (i.e., claims 21-25).

It is respectfully requested that the anticipation rejection be withdrawn with respect to claim 20 and its rejected dependent claims (i.e., claims 21-25).

Claim 26 recites "generating an output signal comprising a plurality of phases of an input signal; and notching the particular frequency of the input signal as a function of the phases".

Accordingly, the same or similar arguments, if applicable, can be made with respect to claim 26 as were made with respect to claim 20.

For at least the above reasons, Coppola does not describe each and every element as set forth in claim 26. It is respectfully requested that the anticipation rejection be withdrawn with respect to claim 26 and its rejected dependent claims (i.e., claims 27-30).

V. CONCLUSION

In view of at least the foregoing, it is respectfully submitted that the pending claims 1-66 are in condition for allowance. Should anything remain in order to place the present application in condition for allowance, the Examiner is kindly invited to contact the undersigned at the below-listed telephone number.

The Commissioner is hereby authorized to charge additional fees or credit overpayments to the deposit account of McAndrews, Held & Malloy, Account No. 13-0017.

Dated: January 8, 2007

Respectfully submitted,

/Michael T. Cruz/

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